

5 Claims

1. A method of scheduling radio resources in a telecommunication packet switched system to a number of users having certain request for Quality of Service, QoS, and thereby certain weights in the scheduling process **characterised in** that the scheduling process is dependant on the following parameters,
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 - the weight (W_i) of the users,
 - earlier schedulings,
 - the dynamic behaviour of the users.
- 15 2. The method of claim 1 wherein a scheduling number (S_i) based on earlier schedulings is calculated for each and all the users before each new scheduling and that a relationship (r) between the weight (W_i) and the number (S_i) is created, which relationship is decisive of which user to be scheduled.
- 20 3. The method of claim 2 wherein the relationship is the ratio, the r -ratio, between the weight and the scheduling number, $r = W_i/S_i$.
4. The method of anyone of claim 1-3 wherein the data to be sent by each user is established in the form of a Temporary Block Flow, TBF, and that the block flow
25 is divided into radio blocks, and wherein one such block is sent over the radio interface when the user is scheduled.
5. The method of anyone of claims 2-4 wherein the starting value of the scheduling number for a particular user is 1 or for a new user, entering the scheduling process
30 once it has started, is a function of earlier scheduling numbers (S_i) and the weights (W_i) of all users.
6. The method of anyone of claims 2-5 wherein the scheduling number for a user is increased by 1 as soon as the user has been scheduled.
- 35 7. The method of claim 5 wherein the starting scheduling number for a user entering the scheduling process once it has started is

- 5 $W_i \sum S_i / ((\sum W_i) - W_i)$
 if this value is greater than 1, otherwise 1.
8. The method of anyone of claim 3-7 comprising the following steps for scheduling a user (TBFi):
- 10 - establish the scheduling number (S_{ij}) for the user
 - calculate the r-ratio,
 - if the r-ratio is the greatest ratio of all users, then
 - schedule a radio block for the user,
 - if the r-ratio is greater for another user,
 - schedule a radio block for that other user.
- 15 9. A system for performing scheduling of a number of users sharing the same communication channels in a packet switched radio communication system during a scheduling session, **characterised by** means for calculating a scheduling number
- 20 (S) for each user dependent on earlier schedulings for this and other users, the weight (W_i) for Quality of Service assigned to the user, and comprising further means for taking into account the moments when the different users enters or leaves the scheduling session, which system ensures a fair distribution of radio resources among the different users according to their assigned weights
- 25 independent of the entering moment.
10. The system of claim 9 wherein each user (TBFi) has a reservation on a PSET comprising of a number of packet switched channels.
- 30 11. The system of claim 9 wherein the initial scheduling (S) number is 1 for users participating in the session from the start, while later users get either
- 1 or $W_i \sum S_i / ((\sum W_i) - W_i)$
- 35 as their initial value whichever value is maximum, where W_i is the weight

5 assigned to the user, ΣW_i is the sum of weights for all users and ΣS_i is the sum
scheduling numbers for earlier users.

12. The system of claim 10 wherein the relation between the weight (W_i) and the
scheduling number (S) i.e. the r-relation is decisive of which user to be scheduled
10 in the next scheduling step.

13. A network element in a packet switched radio communication system, which
element has means to perform either the methods of claim 1-8 or means
incorporated in a system according to claims 9-11 for performing the tasks
15 described in those claims.